

Creating A Greener Energy Future For the Commonwealth

Solar RPS Carve-Out



S-REC PRICE SUPPORT MECHANISM

Public Stakeholder Meeting

**Boston, MA
October 23, 2009**

Solar RPS Carve-Out

Previous Status

- Green Communities Act of 2008 provides DOER with ability to establish solar carve-out from the RPS Class I program.
- DOER provided a Straw Proposal for the Solar Carve-Out in a Public Stakeholder Meeting on August 26th, and received comments through September 9th.
- Straw Proposal highlighted proposed Minimum Standard and ACP rate structures, and discussed critical role for “securitization” of S-REC price/revenue for project developers to achieve financing.
- Role of regulated utilities and the DPU to enable securitization through long term contracts was raised.

Solar RPS Carve-Out Update Summary and Today's Goals

- Commonwealth Solar Rebate Program has aggressively built the solar industry in MA. With initial rebate budgets expired and limited additional resources to bear, momentum of the industry is reliant on the Solar Carve-Out program.
- S-REC price “securitization” through the utilities is a process likely to take through most of 2010 to deliberate with uncertain probability of success. Such delay and uncertainty is problematic for the solar industry to stay vibrant in MA.
- An alternative Price Support Mechanism is proposed by DOER which can be implemented as part of the DOER Solar Carve-Out regulations, and which will provide effective price support immediately.
- DOER seeks Stakeholder input as to the acceptability and effectiveness of the proposed design.

Price Support Mechanism

What it Does

- Solar Project Developers and Financers: The Price Support Mechanism provides assurance to S-REC generators that they will be able to receive for their S-RECs a minimum price over a term of years established and fixed at the time of installation.
- Compliance Entities (Utilities and Competitive): Price Support Mechanism does not require utilities to engage in long term contracts, but provides a balanced S-REC marketplace with competitive pricing and opportunities for hedging in short to long term bilateral contracts.
- Ratepayers and Electric Customers: Price Support Mechanism provides ratepayer cost savings compared to substantial reliance on ACP-level prices, and limits price support to only those S-RECs necessary to secure project financing, while limiting market volatility.

Price Support Mechanism

Primary Features

- Initial Minimum Standard and Target Solar Installation Annual Growth Rate, and the ACP Rate
 - Minimum Standard set for 2010 and growth rate target is set but adjusted annually. ACP Rate is set in 2010, with DOER discretion to reduce by up to 10% in a year.
- Auction Account
 - Auction Account on NE-GIS provides option of last resort for excess S-RECs that are entitled to use the Account
 - Fixed price auction will return minimum price for deposited S-RECs to generators
- Program Triggers and Adjustments
 - Regulations will prescribe triggers and adjustments depending on market conditions to influence S-REC demand and supply and seek balanced S-REC market
- Minimum Standard Cap
 - Solar Carve-Out program is phased out over time and merged with RPS Class I after Cap is reached.

Price Support Mechanism Minimum Standard, Growth Rate, and ACP

- DOER establishes the Minimum Standard for 2010 at 20 MW.*
- Minimum Standard will increase to allow for a 30% per year growth rate in new solar installations, unless adjusted (up or down) due to market conditions as prescribed in regulations.
- Alternative Compliance Payment Rate is set at \$600/MWh in 2010, and DOER maintains discretion to reduce ACP Rate by 10% in any given year.

* Minimum Standard in the regulations will be expressed as a percentage of the load obligation. This percent reasonably converts to an installed solar capacity (MW) which will be used for convenience throughout this presentation.

Price Support Mechanism Auction Account

- DOER (or its agent) will establish and manage an S-REC Auction Account on the New England Generation Information System (NE-GIS).
- Each solar installation, as part of its RPS qualification, will be given a set **Term** of years during which it will have the right (but not the requirement) to deposit S-RECs into the Auction Account.
 - The Term begins at 10 years, but may be adjusted annually (never to exceed 10 years). All projects installed in a given year will be provided the same Term established for that year.
 - The Term for a project already installed/qualified does not change.

Price Support Mechanism

Auction Account

Extended Life S-RECs

- At the end of each Compliance Year, for the final 30 days, Generators will be provided the opportunity to deposit any S-RECs that are within their Term into the Auction Account.
- DOER, in coordination with the NE-GIS, will re-mint the S-RECs in the Auction Account as **Extended Life S-RECs**.
 - The Extended Life S-RECs will have a **Shelf Life** initially set at 2 years, allowing them to be used for compliance for either of the next two compliance years.

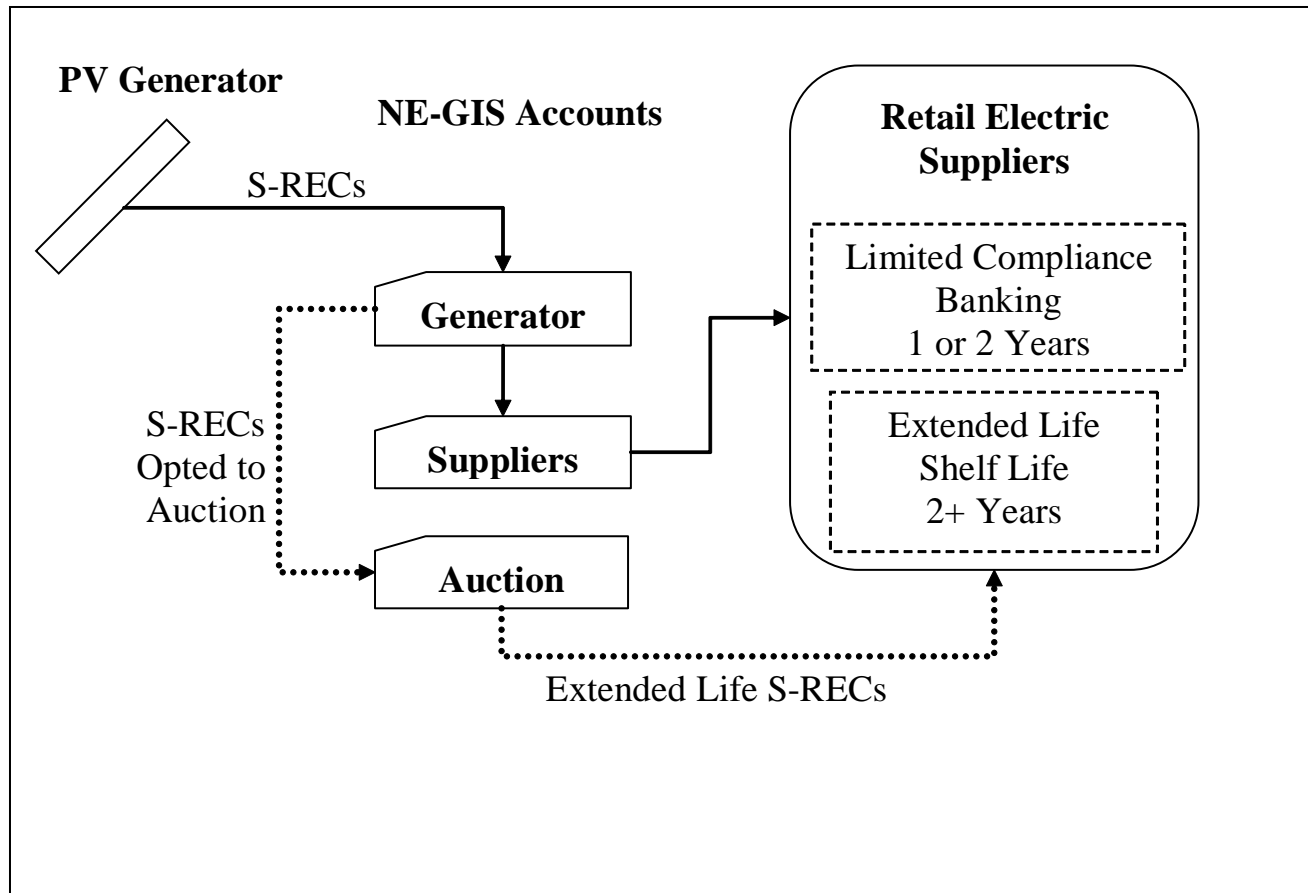
Price Support Mechanism

Auction Account

Fixed Price Auction

- Shortly (e.g. within 15 days) after the close of a Compliance Year in which S-RECs were deposited into the Auction Account, DOER will hold a **Fixed Price Auction** for the Extended Life S-RECs.
- Auction will be a fixed price at \$300/MWh. Bids will be for the volume of Extended Life S-RECs that bidders are willing to buy for this fixed price.
- If the bid volume is insufficient to clear the volume of available Extended Life S-RECs, then ...
 - The Shelf Life of the Extended Life S-RECs is increased by one year (enhancing their market value), and the auction is repeated.
 - Process continues until bid volume is sufficient to clear auction.
- Revenues received from the Auction will be re-distributed to the generators who deposited S-RECs into the Auction Account, minus an **Auction Fee** (5% or \$15/MWh).
 - Auction Fee is an important feature so that the use of the Auction Account is an option of last resort and generators have motivation to seek market trades.

Price Support Mechanism Auction Account Summary Schematic



Price Support Mechanism

Observation: S-REC Market Structure

- While all S-RECs (and Extended Life S-RECs) can be used interchangeably for compliance, the Price Support Mechanism will create two “types” of S-RECs.
 - Those that are generated within the Term during which they can opt into the Auction Account
 - Those that are generated after this Term has expired
- Implication
 - Short S-REC Market: Both types of S-RECs will likely command prices above the fixed Auction price and approaching the ACP Rate.
 - Long S-REC Market: S-RECs under their opt-in term will not sell for under \$300/MWh, while those with expired Terms may, and will likely be bought first by compliance entities.
 - Potential for market volatility will likely result in robust short and medium term bilateral contracts for both types of S-RECs

Price Support Mechanism Triggers and Adjustments

- Auction Account provides price and revenue certainty for solar investors, but important design triggers and adjustments are necessary to maintain S-REC market balance and assure market interest (sufficient bids) for Extended Life S-RECs.
- Triggers and adjustments will be transparent to market so solar development can plan business growth and compliance entities can plan S-REC purchasing.

Price Support Mechanism Triggers and Adjustments

ACP Reliance Trigger (Short S-REC Market)

Trigger: Non-trivial reliance on ACP for compliance

Adjustments:

Minimum Standard Growth Rate is slowed by formula to reduce future demand and allow supply to catch up.

Term provided for new solar generators to opt-in to the Auction Account is re-set at the full 10 years, to stimulate development.

Price Support Mechanism Triggers and Adjustments

Auction Account Reliance Trigger (Long S-REC Market)

Trigger: Non-trivial volume of S-RECs deposited into Auction Account

Adjustments:

Minimum Standard Growth Rate is increased by formula to accelerate future demand growth and enable market to absorb S-RECs generated and Extended Life S-RECs available for compliance.

Term provided for new solar generators to opt-in to the Auction Account is reduced by formula to diminish the incentive value and throttle down development.

Price Support Mechanism Triggers and Adjustments

Minimum Standard Cap Trigger (Policy Goal Reached and Program Termination)

Trigger: Minimum Standard reaches pre-established Minimum
Standard Cap (e.g. 400 MW)

Adjustments:

- Qualification of all additional solar installations is transferred to the RPS Class I program.

- Minimum Standard for Solar Carve-Out remains constant at the Minimum Standard Cap.

- Carve-Out program remains in effect until such time as all the Terms of the S-RECs to use the Auction have expired, and the full Shelf Life years of the Extended Life S-RECs have expired, thereby maintaining the price certainty promised to all solar generators.

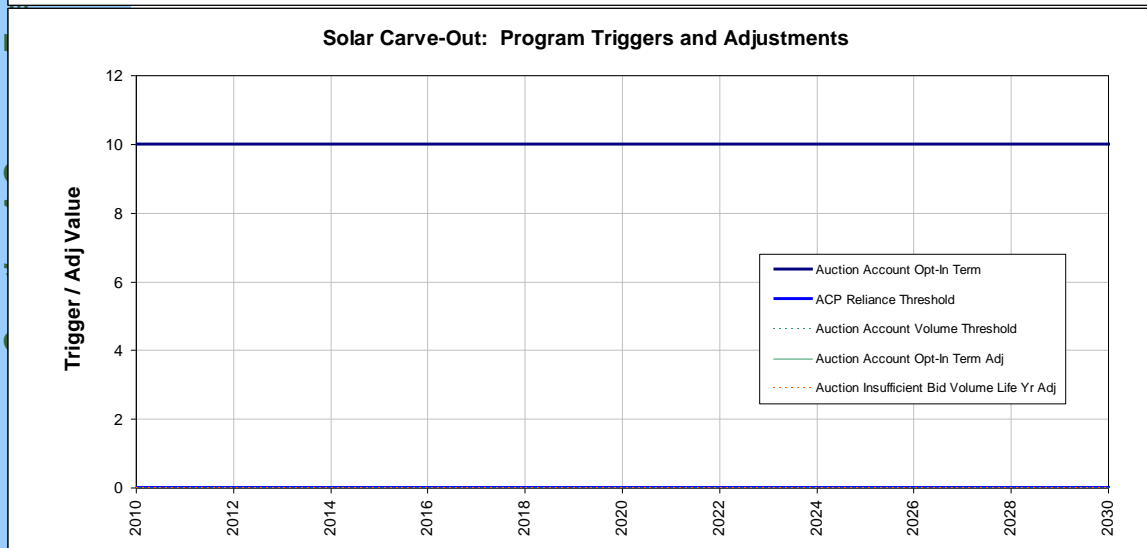
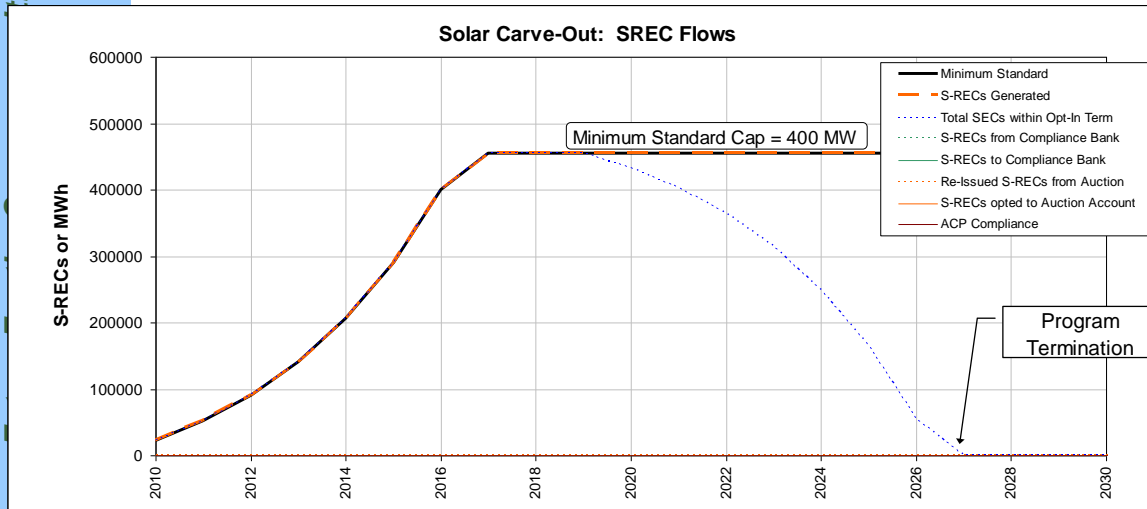
Price Support Mechanism Policy Design Details and Parameters

- The initial conditions and formulaic descriptions of the triggers and adjustments will be established in regulations.
- DOER has drafted tentative formulas and values which are presented in the Appendix of the accompanying *Design Overview* document.
- DOER has constructed a model to evaluate the dynamics of the S-REC market and triggers/adjustments, and scenarios are provided in the *Design Overview* document.
- DOER seeks input into the structure of the Price Support Mechanism, as well as the values of the design parameters.

Price Support Mechanism Scenario Analysis

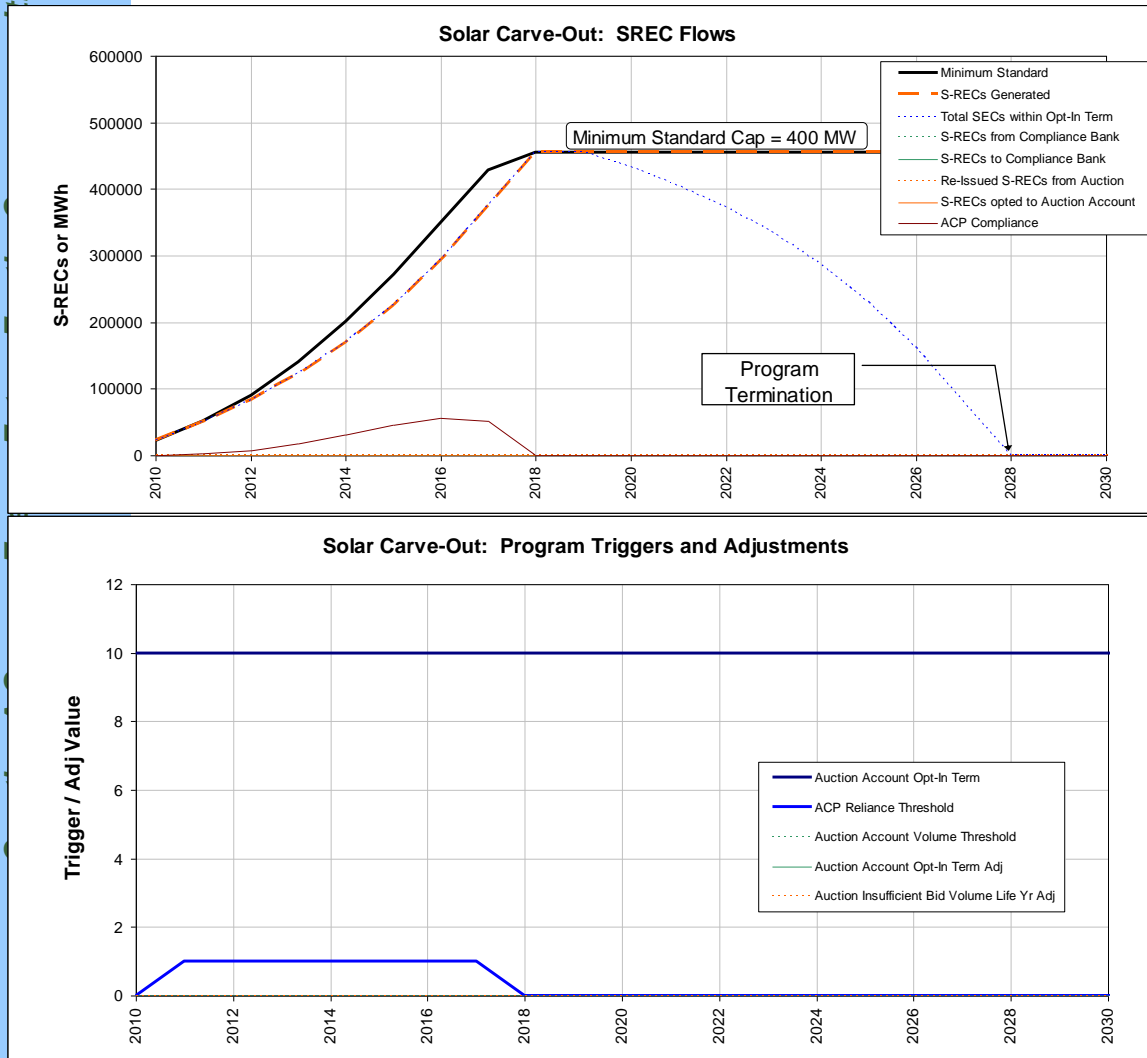
- A set of scenarios are presented to explain the dynamics of the S-REC market and the policy adjustments.
- To provide the Price Support necessary, consideration needs to focus on the assurance that the Extended Life S-REC Auction will attract bidders at the fixed price and clear without undue extension of the Shelf Life.
- Scenarios also need to show that the program provides a stable market enabling business planning, and limits the cost of compliance to ratepayers.

Price Support Mechanism Scenario Analysis Perfect Market Balance



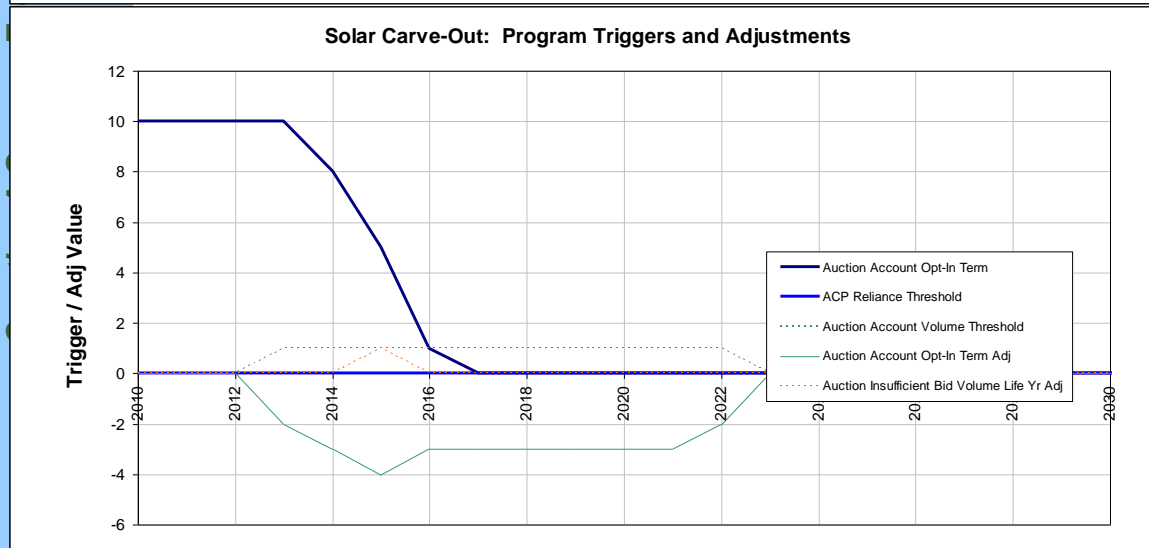
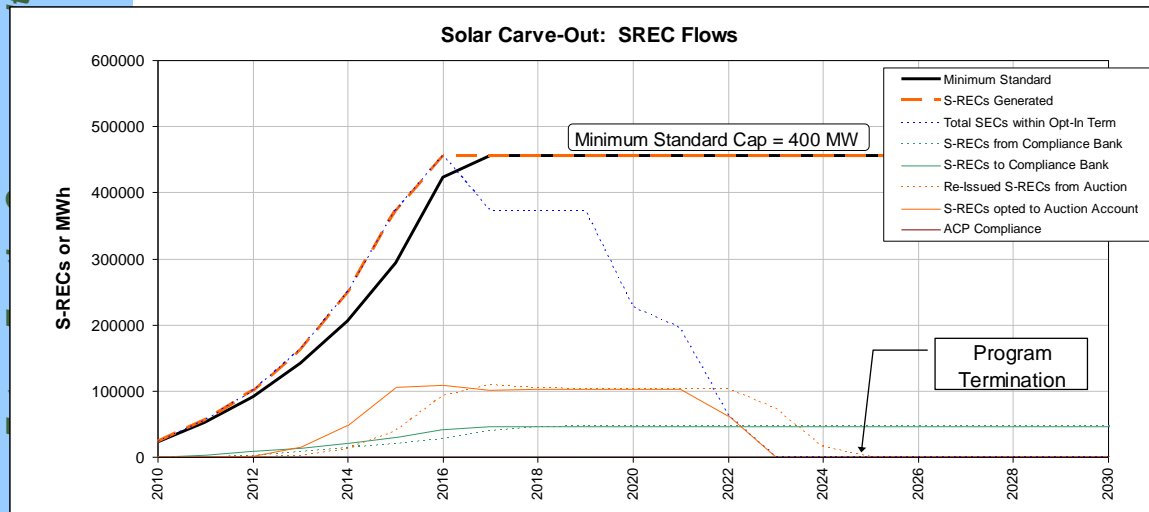
- PV installation starts at exactly 20 MW in 2010 and grows at exactly 30% per year.
- No policy triggers or adjustments.
- Installation meets Minimum Standard exactly each year, with no reliance on ACP or Auction Account.
- Term provided to generators to opt-in to Auction remains at 10 years.
- Minimum Standard Cap is reached in 2017, and program fully expires in 2027.

Price Support Mechanism Scenario Analysis Slow Solar Growth – 20% per year



- PV installation starts at exactly 20 MW in 2010 but grows at only 20% per year.
- ACP reliance trigger, reduces the Minimum Standard growth rate, reducing ACP reliance.
- As solar installation remains fixed at 20%, short market continues until Minimum Standard Cap is reached in 2018.
- Term provided to generators to opt-in to Auction remains at 10 years.
- Program fully expires in 2028.

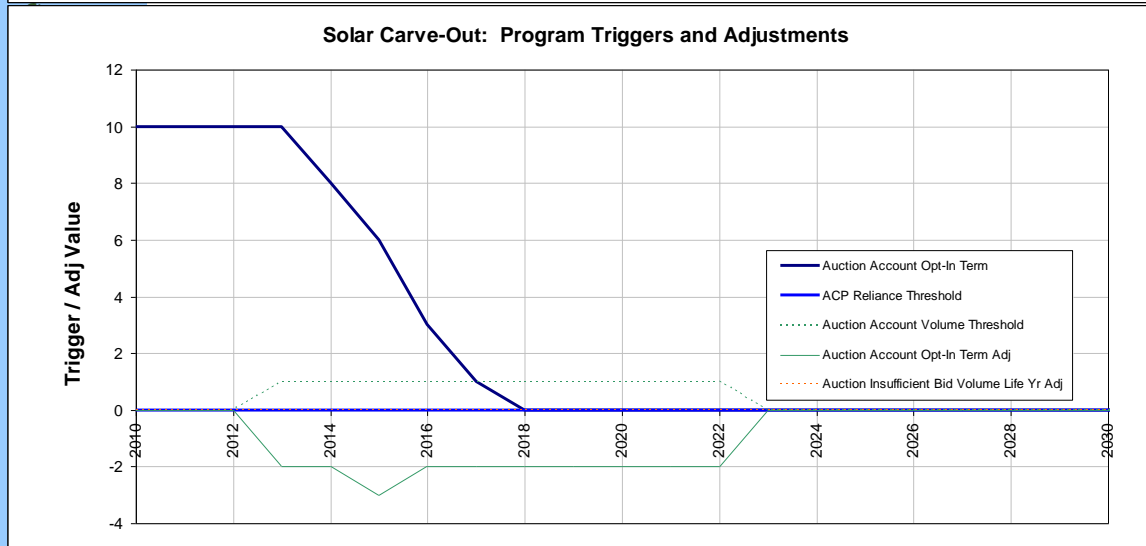
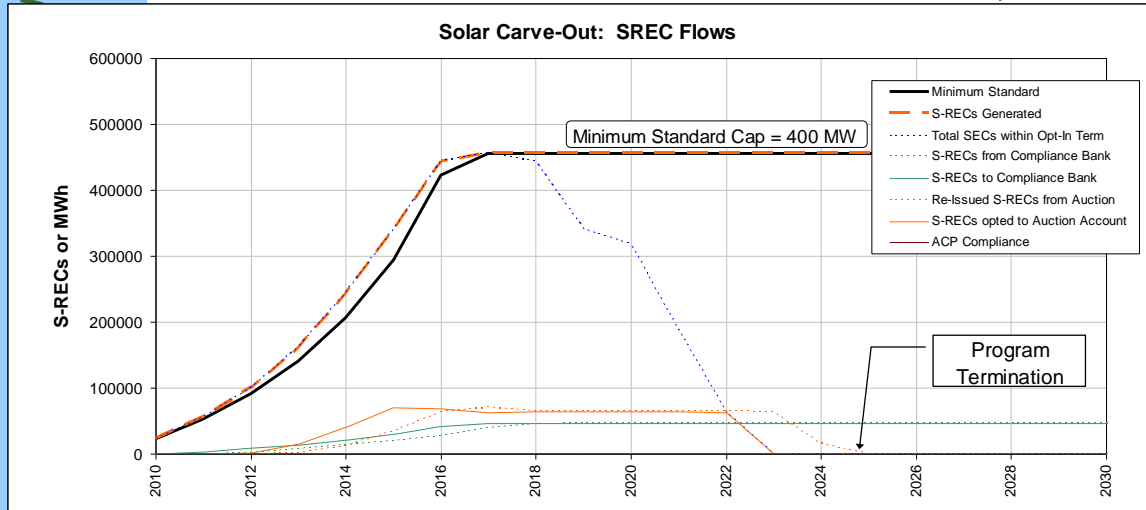
Price Support Mechanism Scenario Analysis Fast Solar Growth – 40% per year



- PV installation starts at exactly 20 MW in 2010 but grows at 40% per year, continually outpacing Minimum Standard.
- Auction Account is utilized each year, triggering a faster Minimum Standard growth rate, and reducing each year the Term provided to new generators to opt-in to the Auction.
- As solar installation remains fixed at 40%, long market continues until Minimum Standard Cap is reached in 2016.
- Program fully expires in 2025.

Price Support Mechanism Scenario Analysis

Fast Solar Growth; Diminished by Incentive



- PV installation starts at exactly 20 MW in 2010 and initially grows at 40% per year, but growth rate is diminished by 5% for each year reduction of the Term.
- Auction Account is utilized each year, triggering a faster Minimum Standard growth rate, and reducing each year the Term provided to new generators to opt-in to the Auction.
- As solar installation growth rate diminishes, the over-supply of S-RECs is lessened and the Minimum Standard Cap is reached in 2017.
- Program fully expires in 2025.

Next Steps and Implementation Schedule

DOER will Receive Stakeholder Written Comments on *Price Support Mechanism*

Comments Due: Thursday, November 5, 2009

Send comments to michael.pleasant@state.ma.us

All comments, presentations, announcement, and other information will be available at DOER website (www.mass.gov/doer)

Key Activities

- DOER will further analysis and tune parameters for Price Support Mechanism
- Issue Emergency Regulations in December 2009 for program to commence 1/1/2010
- Initiate formal rulemaking in January 2010.